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IS 6834-1 (1973): Specification for Conveyor Chains, Chain-Wheels and Attachments, Part I: Chains [MED 6: Continuous Bulk Conveying, Elevating, Hoisting Aerial Ropeways and Related Equipment]



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IS : 6834 (Part I) - 1973

(Reaffirmed 1991)

Indian Standard

SPECIFICATION FOR CONVEYOR CHAINS, CHAIN-WHEELS AND ATTACHMENTS

PART I CHAINS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*Indian Standard*SPECIFICATION FOR CONVEYOR
CHAINS, CHAIN-WHEELS AND ATTACHMENTS

PART I CHAINS

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Indian Standard
SPECIFICATION FOR CONVEYOR
CHAINS, CHAIN-WHEELS AND ATTACHMENTS
PART I CHAINS

0. FOREWORD

0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 2 February 1973, after the draft finalized by the Conveyors, Vertical Hoists and Bucket Elevators Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard (Part I) has been prepared with a view to ensuring interchangeability of complete chains and interchangeability of individual links of chains for repair purposes. Subsequent parts of this standard will relate to chain wheels and attachments.

0.3 While preparing this standard assistance has been derived from BS : 4116-1971 'Specification for steel roller chains, chain wheels and attachments for conveyor' issued by the British Standards Institution. Assistance has also been derived from ISO/R 1977-1971 'Conveyor chains, attachments and chain wheels — Part I Chains (Metric series)' issued by International Organization for Standardization.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part I) specifies the requirements for bush, plain and flanged roller chains of the following two types, designed for general conveying and mechanical handling duties:

- a) Solid bearing pin type, and
- b) Hollow bearing pin type.

*Rules for rounding off numerical values (revised).

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2. TERMINOLOGY

2.1 For the purpose of this standard, the definition given in IS : 4240-1967* shall apply.

2.2 For the purpose of this standard, the nomenclature given in Fig. 1 shall apply.

3. MATERIAL

3.1 The chains shall be manufactured from any suitable steel which in the finished condition satisfies the requirement laid down in 10.

4. DIMENSIONS

4.1 The conveyor chains shall conform to the dimensions given in Tables 1 and 2 read with Fig. 2.

4.1.1 The maximum and the minimum dimensions are specified to ensure interchangeability of links as produced by different manufacturers of chains. They represent limits for interchangeability but are not the actual tolerances that should be used in manufacture.

4.1.2 The pitch p is a theoretical reference dimension used in calculating strand lengths and chain wheel dimensions and it is not intended for inspection of individual links.

5. LENGTH ACCURACY

5.1 The finished chain shall be accurate within \pm_{-0}^{+25} percent of the nominal chain length when measured under the following conditions:

- a) *Standard Test Length for Measurement* — The standard length of chain for measurement purposes shall be that nearest 3 000 mm when an odd number of pitches, terminating at each end in an inner link, are assembled;
- b) *Support* — The chain, in the unlubricated condition, shall be supported throughout its entire length; and
- c) *Measuring Load* — A measuring load equal to 1/50 of the appropriate breaking load shall be applied (see Tables 1 and 2).

NOTE — The length accuracy of chains which have to work in parallel should be within the above limits but matched by agreement with the manufacturer.

6. BEARING PINS

6.1 Bearing pins shall preferably be riveted on all outer links. However, it is permissible to use detachable links for joints and in exceptional applications.

6.2 The bearing pins shall be either of plain type or of shouldered type.

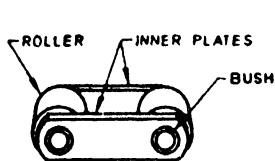
*Glossary of conveyor terms and definitions.



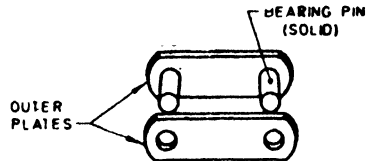
A SOLID BEARING PIN CHAIN



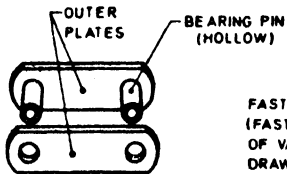
B HOLLOW BEARING PIN CHAIN



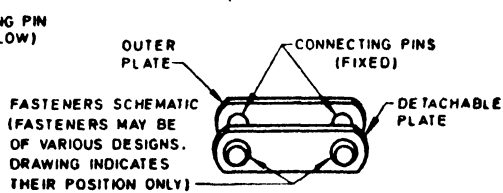
C INNER LINK



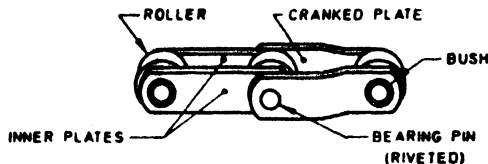
D OUTER LINK
(SOLID BEARING PINS)



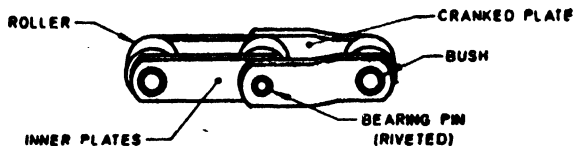
E OUTER LINK
(HOLLOW BEARING PIN)



F CONNECTING LINK



G CRANKED LINK DOUBLE
(SOLID BEARING PIN)



H CRANKED LINK DOUBLE
(HOLLOW BEARING PIN)

FIG. 1 NOMENCLATURE OF CONVEYOR CHAINS

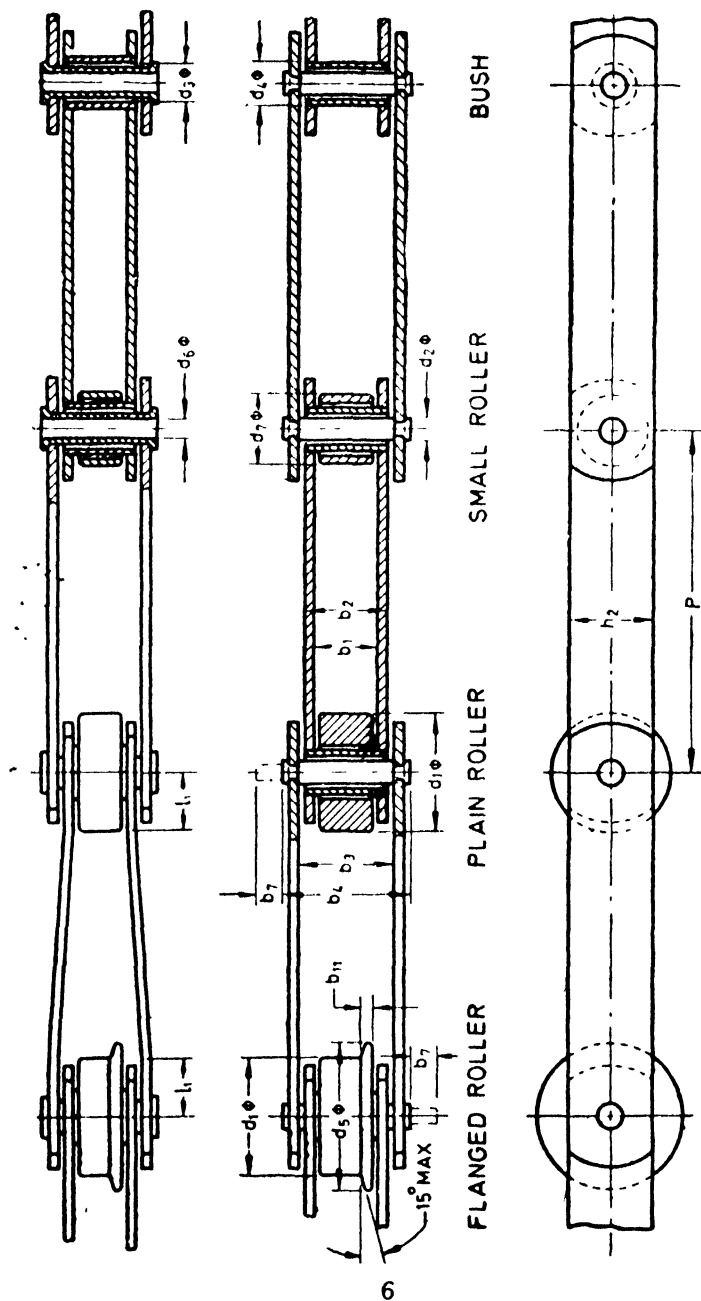


TABLE 1 DIMENSIONS FOR SOLID PIN CONVEYOR CHAINS

(Clauses 4.1, 5.1, 7.1 and 10.1.2 and Fig. 2)

All dimensions in millimetres.

CHAIN No. (Basic)	BREAKING LOAD	Pitch p	Roller Dia	BUSH				PLATE DEPTH	WIDTH BETWEEN INNER PLATES	WIDTH OVER INNER LINK	WIDTH BETWEEN OUTER PLATES	WIDTH OVER BEARING PINS	ADDITIONAL WIDTH FOR JOINT FASTENERS	MEASURING LOAD		CRANKING LINK DIMENSION	FLANGED ROLLER DIMENSIONS		SMALL ROLLER Dia
				Bearing Pin Body	Bore Dia	Max	Min							kN	kgf		Flange Dia	Flange Width	
	kN		d_1 Max	d_2 Max	d_3 Min	d_4 Max	h_2 Max		b_1 Min	b_2 Max	b_3 Min	b_4 Max	b_7 Max			l_1 Min	d_5 Max	b_{11} Max	d_7 Max
M120	20	2 000	25		6.0	6.1	9.0	19	15	22	22.2	35	7	0.40	40	12.5	35	3.5	12.5
M128	28	2 800	30		7.0	7.1	10.0	21	17	25	25.2	40	8	0.56	56	14.0	40	4.0	15.0
M140	40	4 000	36		8.5	8.6	12.5	26	19	28	28.3	45	9	0.80	80	17.0	45	4.5	18.0
M156	56	5 600	42		10.0	10.1	15.0	31	23	33	33.3	52	10	1.12	112	20.5	55	5.0	21.0
M180	80	8 000	50		12.0	12.1	18.0	36	27	39	39.4	62	12	1.60	160	23.5	65	6.0	25.0
M112	112	11 200	60		15.0	15.1	21.0	41	31	45	45.5	73	14	2.24	224	27.5	75	7.0	30.0
M160	160	16 000	70		18.0	18.1	25.0	51	36	52	52.5	85	16	3.20	320	34.0	90	8.5	36.0
M224	224	22 400	85		21.0	21.2	30.0	62	42	60	60.6	93	18	4.50	450	40.0	105	10.0	42.0
M315	315	31 500	100		25.0	25.2	36.0	72	47	70	70.1	112	21	6.30	630	47.0	125	12.0	50.0
M450	450	45 000	120		30.0	30.2	42.0	82	55	82	82.8	135	25	9.00	900	55.0	150	14.0	60.0
M630	630	63 000	140		36.0	36.2	50.0	103	65	96	97.0	154	30	12.50	1250	66.5	175	16.0	70.0
M900	900	90 000	170		44.0	44.2	60.0	123	76	112	113.0	180	37	18.00	1800	81.0	210	18.0	85.0

NOTE 1 — Those pitches indicated by crosses are for bush and small roller chains only.

NOTE 2 — The dimension l_1 also determines the maximum limit of the path of articulation of end of side plate.

NOTE 3 — The breaking load in kgf is approximate and is for guidance only.

TABLE 2 DIMENSIONS FOR HOLLOW PIN CONVEYOR CHAINS

(Clauses 4.1, 5.1, 7.1 and 10.1.2 and Fig. 2)

All dimensions in millimetres.

CHAIN No. (Basic)	BREAKING LOAD		Pitch p	BEAR- ING PIN BODY Dia	BUSH BORE	BUSH Dia	PLATE DEPTH	WIDTH BET- WEEN INNER PLATES	WIDTH OVER INNER LINK	WIDTH BET- WEEN OUTER PLATES	WIDTH OVER BEAR- ING PINS	ADDI- TIONAL WIDTH FOR JOINT FASTEN- ERS	MEASURING LOAD	CRANK LINK DIMEN- SION	FLANGED ROLLER DIMENSIONS		HOLLOW PIN BORE
	kN	kgf													Flange Dia	Flange Width	
				d_2 Max	d_3 Min	d_4 Max	h_2 Max	b_1 Min	b_2 Max	b_3 Min	b_4 Max	b_7 Max	kN	kgf	d_5 Min	b_{11} Max	d_6 Min
MC28	28	2 800		13.0	13.1	17.5	26.0	19.0	28.6	28.6	42.0	10.0	0.56	56	45.0	4.5	8.2
MC36	56	5 600		15.5	15.6	21.0	36.0	22.0	33.0	33.7	48.0	13.0	1.12	112	65.0	5.0	10.2
MC112	112	11 200		22.0	22.2	29.0	51.0	30.0	45.0	45.7	67.0	19.0	2.24	224	90.0	7.0	14.3
MC224	224	22 400		31.0	31.2	41.0	72.0	40.0	60.0	60.8	90.0	24.0	4.50	450	125.0	10.0	20.3

NOTE 1 — The dimension l_1 also determines the maximum limit of the path of articulation of end of side plate.

NOTE 2 — Chain MC112-P-100 requires a special design of chain wheel.

NOTE 3 — The breaking load given in kgf is approximate and is for guidance only.

7. CRANKED LINKS

7.1 To obtain an odd number links in an endless chain it is necessary to use a cranked link (*see* Fig. 1) and in such cases a double link shall be supplied. Dimensions of the cranked links shall be as given in Tables 1 and 2.

NOTE — Cranked links are not recommended for normal use.

8. DESIGNATION

8.1 The chains shall be designated by the following:

- a) Commonly used name;
- b) Chain number;
- c) Whether bush or roller chain (B for bush, F for Flanged, P for plain and S for small);
- d) The pitch of the chain; and
- e) IS number.

Example:

A hollow bearing pin chain of chain number MC28 with flanged roller and of pitch 100 mm shall be designated as :

Chain MC28-F-100 IS :

9. MARKING

9.1 The chain shall be marked with the manufacturer's name, or trade-mark and the chain number.

9.1.1 The chain may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10. TEST

10.1 Breaking Load Test — The test length shall have a minimum of three free pitches. The ends shall be attached to the testing machine shackles by a pin through the plate holes or the bunches. The shackles

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shall be so designed as to allow universal movement; the actual method is left to the discretion of the manufacturer.

10.1.1 Tests in which failures occur adjacent to the shackles shall be disregarded.

10.1.2 The minimum breaking loads shall be not less than 95 percent of those given in Tables 1 and 2.

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